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10/518,140	12/10/2004	Christophe Janneteau	CR00568P	5279

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EXAMINER	
LAI, ANDREW	

ART UNIT	PAPER NUMBER
2616	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/518,140	JANNETEAU ET AL.	
	Examiner	Art Unit	
	Andrew Lai	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-12 and 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 October 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Examiner's Note

Applicant filed amendments after Examiner's the first Office action with an amended independent claim 1, a newly added independent claim 27, and a cancellation of independent claims 13, 17 and 18. It is noted that claims 14-16 and 19-26 had been previously cancelled prior to the first Office action. Therefore, the present Office action is drawn to claims 1-12 and 27.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, 10-12 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al (US 5,883,891, Williams hereinafter) in view of Ernst ("Network Mobility Support in IPv6", a thesis presented in fulfillment of the requirement for the degree of Doctor of Philosophy to the Department of Mathematics and Computer Science at Universite Joseph Fourier, France, October 29, 2001).

- **Regarding Independent claims 1 and 27**

Williams discloses "method and apparatus for increased quality of voice transmission over the Internet" (col. 1 lines 1-3) "to reduce unpredictable delays due to

variations in loading, routing and other factors" (Abstract lines 2-4) comprising the following features:

Regarding claim 1, *a method of transmitting a data packet* ("permit computer users to talk to each other using voice communication, and their computers, over the Internet", col. 1 lines 13-15, wherein "the digital data is organized into a bitstream consisting of packets", col. 1 lines 21-22) *on a communication path* ("over various types of communication channels", col. 1 lines 17-18, and also fig. 1B, e.g. "route A") *from a first communication node* ("source node", col. 2 line 54, or fig. 1B "host 15") *to a second communication node* ("destination node", col. 2 lines 55-56, or fig. 1B "host 20") *in a network* (fig. 1A "internet 10"), *the method comprising the steps of:*

the first communication node receiving a route message ("the source node receives the echo route packet", col. 8 lines 13-14, which "echo route packets are [originally] sent to the destination node by the source node", col. 8 line 8-9) *from said second communication node* ("when the echo route packet is received by the destination node, it is transmitted back to the source node", col. 8 lines 10-11), *wherein said route message includes a list of a plurality of intermediary addresses between said first communication node and said second communication node* ("The echo route packet is sent by the source node to the destination node (destination host server) to collect the node IDs along its route. As that packet traverses the Internet, each [intermediate] node along the route inserts its IP address and a time stamp", col. 7 line 66 - col. 8 line 3), *the plurality of intermediary addresses comprising an address of a router* (Williams discloses that his "intermediate nodes" comprise "routers", see col. 8

lines 17-18 for "'strict source routing' in which the header lists all intermediate nodes (routers)");

the first communication node (the "source node") *generating a preferred communication path* ("select the best available route", col. 3 line 17) *in response to said list of intermediary addresses* ("When the source node receives the echo route packet, it extracts the route", col. 8 lines 13-14, and "The source node compares a number of returned echo packets which have been transmitted over different routes, to select the best available route", col. 3 line 14-17);

the first communication node (the "source node") *transmitting said at least one data packet from said first communication node to said second communication node* (the "destination node") *via said preferred communication path* ("the header of each packet is formatted by the source node to include a list of nodes in sequence, that best determines the route which the packet is transmitted (see FIG. 8)", col. 8 lines 65-67)

Regarding claim 27, *a first communication node* ("source node", col. 2 line 54, or fig. 1B "host 15") *for transmitting a data packet* ("permit computer users to talk to each other using voice communication, and their computers, over the Internet", col. 1 lines 13-15, wherein "the digital data is organized into a bitstream consisting of packets", col. 1 lines 21-22) *on a communication path* ("over various types of communication channels", col. 1 lines 17-18, and also fig. 1B, e.g. "route A") *to a second communication node* ("destination node", col. 2 lines 55-56, or fig. 1B "host 20") *in a network* (fig. 1A "internet 10"), *comprising:*

means for receiving a route message ("the source node receives the echo route packet", col. 8 lines 13-14, which "echo route packets are [originally] sent to the destination node by the source node", col. 8 line 8-9) *from said second communication node* ("when the echo route packet is received by the destination node, it is transmitted back to the source node", col. 8 lines 10-11), *wherein said route message includes a list of a plurality of intermediary addresses between said first communication node and said second communication node* ("The echo route packet is sent by the source node to the destination node (destination host server) to collect the node IDs along its route. As that packet traverses the Internet, each [intermediate] node along the route insets its IP address and a time stamp", col. 7 line 66 - col. 8 line 3), *the plurality of intermediary addresses comprising an address of a router* (Williams discloses that his "intermediate nodes" comprise "routers", see col. 8 lines 17-18 for "'strict source routing' in which the header lists all intermediate nodes (routers)");

means for generating a preferred communication path ("select the best available route", col. 3 line 17) *in response to said list of intermediary addresses* ("When the source node receives the echo route packet, it extracts the route", col. 8 lines 13-14, and "The source node compares a number of returned echo packets which have been transmitted over different routes, to select the best available route", col. 3 line 14-17);

means for transmitting said at least one data packet from said first communication node to said second communication node (the "destination node") *via said preferred communication path* ("the header of each packet is formatted by the

source node to include a list of nodes in sequence, that best determines the route which the packet is transmitted (see FIG. 8)", col. 8 lines 65-67)

Regarding both claims 1 and 27, Williams does not discloses the following features:

said communication network comprises *a mobile network*, and

said routers comprise *a mobile router.*

Ernst discloses a work "devoted to the study of network mobility support in IPv6" (Abstract line 1) wherein, refer to fig. 7.5, "VMN" (visiting mobile node) registers with its "HA" (home agent) or "CN" "correspondent node" via an "MR" (mobile router), and receives message or "payload", fig. 7.6 message path 3, through the "MR") comprising the above cited features for claim 1, i.e.,

said communication network comprises *a mobile network* ("offer permanent and un-interrupted Internet connectivity and optimal routing to all mobile network nodes, while scaling to a large number of correspondent nodes and a large number of mobile networks", p85 Chapter 7 paragraph 1 lines 2-3, of which fig. 3.5 depicting an example of an "*MN*", mobile network, moving from its home address "MN_{IP}" to its care-of address "MN_{coa}").

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the network (Internet) of Williams by adding the mobile network and associated mobile routers of Ernst to Williams in order to provide dynamic IP mobility wherein "anyone would benefit from the same social and professional environment

without restriction of the current geographical location" (Ernst, p. 1 "Motivations and Objectives" 1st paragraph lines 3-4).

- **Regarding the Dependent claims**

Regarding claim 2, Williams discloses *said sep of transmitting includes routing said at least one data packet via a plurality of routers* (see citation above for claim 1 regarding "intermediate nodes" being "routers") *identified by said intermediary addresses in said network* ("the header of each packet is formatted by the source node to include a list of [intermediate] nodes in sequence, that best determines the route which the packet is transmitted (see FIG. 8)", col. 8 lines 65-67).

Williams does not but Ernst does disclose *mobile network* and *mobile routers* (see citation above for claim 1) *wherein said mobile network supports nested network mobility operation* (see p89 subsection "7.1.3.1 Nested Mobility" and see again fig. 3.5 depicting an example of an "*MN*", mobile network, moving from its home address "MN_{HP}" to its care-of address "MN_{coa}").

Regarding claim 3, Williams discloses *said network operates in accordance with an IPv4 specification* ("The packets use IP (Internet Protocol) addresses (header) which are 32 bits long", col. 5 lines 4-5, noting it's well known in the art 32 bit long IP addresses are of IPv4). Williams does not but Ernst does disclose *mobile network* (see discussion for claim 1) *in accordance with an IPv6 specification* ("we propose network mobility support extension to Mobile IPv6", p85 "Proposed Mobile IPv6 Extension" 1st paragraph 1st line).

Regarding claim 4, Williams does not but Ernst does disclose *said first communication node is a correspondent node of the said second communication node and/or said second communication node is a mobile network node* (p.90 fig. 7.6 depicting "*CN*", correspondent node, sending "payload 3" to "*VMN toto.foo*", which "VMN" indicates visiting *mobile node*).

Regarding claim 5, Williams discloses *sending a care-of-route message* ("echo route packet" cited for claim 1), *by a plurality of communication nodes in the network, that includes route information related to communication nodes attached to said second communication node, so that a communication path to an intended recipient can be determined* ("The echo route packet is sent by the source node to the destination node (destination host server) to collect the node IDs along its route. As that packet traverses the Internet, each [intermediate] node along the route insets its IP address and a time stamp", col. 7 line 66 - col. 8 line 3, as can be seen clearly herein above, when the "echo route packet" reaches the destination node, it will *include route information related to communication nodes attached to said second communication node*, which then is effectively the same as the *care-of-route message* of present Application in light of the Specification). Williams does not but Ernst does disclose *mobile network* (see citation for claim 1 above) and said message being sent as an *advertising message* (see Ernst "Neighbor Advertisements: used to ... and to advertise a new link-layer address", p20 subsection "2.2.3 Neighbor Discovery" 3rd paragraph, and "Router Advertisements used by routers to advertise their presence", said section 2.2.3 paragraph 5).

Regarding claim 6, Williams discloses *said list of the plurality of intermediary addresses* ("echo route packet" received by "source node") *includes address of one or more routers above the second communication node in a route hierarchy for delivering said data packet to an intended recipient* ("the header of each packet is formatted by the source node to include a list of nodes in sequence, that best determines the route which the packet is transmitted (see FIG. 8) [to the destination node]", col. 8 lines 65-67). Williams does not but Ernst does disclose *mobile router* (see citation for claim 1 above) and in fact Ernst also discloses *one or more routers above the second communication node* ("the Routing Extension header must be filled in the right order so that packets are first routed to the MR_{coa}, the to VMN_{coa}", p91 1st paragraph lines 4-5, wherein MR_{coa} indicates mobile router's care-of-address and VMN_{coa} visiting mobile node care-of-address).

Regarding claim 10, Williams discloses does not but Ernst does disclose *sending periodically said route advertising message to all or a selected number of communication nodded in the mobile network* ("address are configured by listening to network prefixes advertised by Neighbor Discovery Router Advertisements", p20 subsection "1.24 Address Configuration" 2nd paragraph). Williams discloses route advertising message being *care-of route messages* (see citation for claim 5 above).

Regarding claim 11, William does not but Ernst does disclose *sending a mobile network prefix advertisement message by a mobile router at a top of a routing hierarchy in the mobile network to advertise said mobile network prefix* ("Router Advertisements

used by routers to advertise their presence... They provide a list of prefixes", p20 subsection "2.2.3 Neighbor Discovery" paragraph 5); *and*

determining by communication nodes in the same mobile network that they are located within the sending mobile router's mobile network ("The MN [mobile node] establishes the binding between the current *RCoA* and the *LCOA* with the MAP [mobility anchor point or mobile router]", p36 subsection "3.2.1 Basic Mode" paragraph 1 lines 4-5, wherein *RCoA* is the care-of address of the router (or MAP) and *LCoA* the care-of address of the *MN*).

Regarding claim 12, Williams does not but Ernst does disclose *sending an extended binding update message containing route information only to communication nodes outside or the sending communication's mobile network* (see "extends Mobile IPv6 and separates Local-Area Mobility from Wide-Area Mobility. The main benefit of this proposal is to render Local-Area Mobility transparent to CNs", p35 subsection "3.1.2 IETF Hierarchical Mobile IPv6" paragraph 1 lines 2-3).

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al (US 5,883,891, Williams hereinafter) in view of Ernst ("Network Mobility Support in IPv6", a thesis presented in fulfillment of the requirement for the degree of Doctor of Philosophy to the Department of Mathematics and Computer Science at Universite Joseph Fourier, France, October 29, 2001), as applied to claim 5 above, and further in view of Inoue et al (US 6,587,882, Inoue hereinafter).

Williams in view of Ernst discloses claimed limitations in paragraph 2 above including Williams disclosing *transmission of one or more care-of route messages* ("echo route packet"), *containing route information of one or more IP addresses, from adjacent communication nodes* ("As that packet traverses the Internet, each [intermediate] node along the route inserts its IP address and a time stamp", col. 7 line 66 - col. 8 line 3) and Ernst disclosing said message in a form of *advertisement* (see Ernst "Neighbor Advertisements: used to ... and to advertise a new link-layer address", p20 subsection "2.2.3 Neighbor Discovery" 3rd paragraph, and "Router Advertisements used by routers to advertise their presence", said section 2.2.3 paragraph 5).

Williams in view of Ernst however does not disclose *requesting* said transmission of care-of route advertisement message *when said second communication node moves to a new location within the mobile network.*

Inoue discloses "a mobile IP communication scheme in which a visited site or nearby network of a mobile computer is utilized as a temporal home of a mobile computer" (Abstract lines 1-3 and see fig. 1, e.g., "network 1-1" with "MA [mobile agent] 5" and "MN [mobile computer node] 2") comprising performing network configuration acquisition *when said second communication node moves to a new location within the mobile network* (refer to fig. 11 and see, first, "when the registration message is accepted, the query message for the network configuration information of this visited site network is sent to the mobile computer management server 5", col. 8 lines 53-56, and further fig. 12 step S11 "care-of-address acquisition processing", step S12 "processing for judging whether it is in the same subnet as MA or not", step S13 "same

subnet" "YES", and then step 16 "network configuration information of visited site network acquisition processing").

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Williams by adding Inoue's feature of the network configuration acquisition upon registration to Williams in order to provide a more robust mechanism for mobility wherein "it is possible to construct a mobile IP communication environment in which a visited site network or a nearby network is regarded as a home network (Inoue col. 3 lines 38-40) which would avoid the "need for making an extra setting ... disadvantageous from a viewpoint of the performance of packet exchange with the home network" (col. 3 lines 26-29).

4. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al (US 5,883,891, Williams hereinafter) in view of Ernst ("Network Mobility Support in IPv6", a thesis presented in fulfillment of the requirement for the degree of Doctor of Philosophy to the Department of Mathematics and Computer Science at Universite Joseph Fourier, France, October 29, 2001), as applied to claim 5 above, and further in view of Baba et al (US 6,799,204, Baba hereinafter).

Williams in view of Ernst discloses claimed limitations in paragraph 2 above including Williams disclosing for both **claims 8 and 9** *care-of route messages* ("echo route packet") and Ernst disclosing said message in a form of *advertisement* (see Ernst "Neighbor Advertisements: used to ... and to advertise a new link-layer address", p20

subsection "2.2.3 Neighbor Discovery" 3rd paragraph, and "Router Advertisements used by routers to advertise their presence", said section 2.2.3 paragraph 5).

Ernst further discloses the following features:

Regarding claim 8, *extracting intermediary route messages from said route information in said care-of route advertising messages at a communication node* ("neighbor Advertisements: used to respond to Neighbor Solicitations and to advertise a new link-layer address", p20 subsection 2.2.3 paragraph 3, which operation as a response to Neighbor Solicitations will necessarily prompt the solicitor node to extract the link-layer address as *intermediary route message*).

Regarding claim 9, *appending a route message of the communication unit to said list of intermediary routes in said care-of route advertising message at said communication node* (see "The Hop-by-Hop Options Header carries additional information that must be processed by each intermediate router", p18 paragraph 3 and "IPv6 also defines encapsulation as a means to force a packet to take a different route. This is performed by enclosing the original packet as the payload of a new packet and by appending a new IPv6 Header specifying the new destination", p18 paragraph 6 lines 1-3).

Williams in view of Ernst however does not disclose **regarding claim 8**, *transmitting said intermediary route messages to communication nodes that the extracting communication node serves.*

Baba discloses a "method, system, apparatus and product for providing dynamic registration and configuration of mobile clients in end to end wireless/wireline Internet

Protocol (IP) networks" (col. 1 lines 12-16) comprising the above cited feature regarding **claim 8** that is missing from Williams in view of Ernst (see "DRCP_ADVERTISEMENT: Server periodically broadcasts (or unicast in response to a client using an incorrect addrerss) the network information (such as Server IP address or Network address). Listening to this, client can understand the subnet change", col. 4 lines 63-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Ernst by adding the route message broadcast means of Baba to Ernst in order to provide a more efficient system wherein "registration functionality would enable roaming mobile hosts to rapidly and automatically register their presence and their requirements with networks" (Baba, p3 lines 6-8).

Response to Arguments

5. Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,920,697 discloses method of automatic updating and use of routing information based on least lost routing wherein intermediate node addresses are added, one by one, to a message being sent to a data source node.

US 5,940,379 discloses apparatus and method for using multiple spreading codes for data transmission wherein intermediate node addresses were provided to source node by a system directory service node.

US 5,347,450 discloses message routing in a multiprocessor computer system with a routing means which allows reservation of a route through the network of nodes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Lai whose telephone number is 571-272-9741. The examiner can normally be reached on M-F 7:30-5:00 EST, Off alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AL

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SUPERVISORY PATENT EXAMINER